

METHOD FOR FORMING A GATE ELECTRODE HAVING A METAL

Abstract of the Disclosure

5 One embodiment forms a gate dielectric layer over a substrate and then selectively deposits a first metal layer over portions of the gate dielectric layer in which a first device type will be formed. A second metal layer, different from the first metal layer, is formed over exposed portions of the gate dielectric layer in which a second device type will be formed. Each of the first and second device types will have different work functions because each will
10 include a different metal in direct contact with the gate dielectric. In one embodiment, the selective deposition of the first metal layer is performed by ALD and with the use of an inhibitor layer which is selectively formed over the gate dielectric layer such that the first metal layer may be selectively deposited on only those portions of the gate dielectric layer which are not covered by the inhibitor layer.